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U.S. DEPARTMENT OF THE INTERIOR - BUREAU OF LAND MANAGEMENT

Management Considerations on Halogeton Infested Rangelands

(A Supplement to Technical Note P-712a)

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It has become increasingly important for the range manager to recognize the effects of the poisonous plants that cover extensive areas of the rangelands and to determine their impact in the development of grazing systems. These grazing systems must take into account the effect of such plants in the overall management scheme. This becomes increasingly important on halogeton infested areas when one considers that halogeton is found on some 9-million acres of rangeland administered by the Bureau of Land Management. Several important points concerning halogeton must be borne in mind by the managers:

1. Halogeton infested areas require special management of both plants and animals.
2. Halogeton is utilized by grazing animals.
3. The plant is more palatable during some seasons and under certain climatic conditions than at other periods of the year.
4. Proper handling of livestock will result in fewer losses. Proper handling when used in a systematic grazing sequence will also increase vigor and health of desirable perennial plants.
5. Halogeton occurs in varying densities, depending on other plant species and composition. The density of halogeton varies according to the density of other plants and the vigor of these associated plants. Therefore, halogeton, although it is a poor competitor, will be found in varying degree of density throughout relatively healthy stands of plant communities. The more heavily grazed an area, the greater the density of halogeton plants on comparable soil sites. The variations of halogeton densities in the plant communities will dictate the type of management needed of both plants and animals. It is therefore significant to note that there is no substitute for a grazing system in halogeton areas. (13)^{1/} The healthy, vigorous plant community can withstand

^{1/} Numbers in parentheses refer to literature cited, P.5, 6, & 7.

invasion by halogeton. Keeping this in mind, the technician should consider the role of the halogeton plant in developing the grazing system.

Managing the Forage Resource on Halogeton Infested Ranges

Native Rangelands

1. Allotment Management Planning should identify halogeton infested areas, especially those areas where historical losses of grazing animals have occurred.
2. Determine if this is a crucial area needing special management considerations or if the area should be excluded from grazing.
3. Design the grazing system so that there is one rest period for one complete year. Since most halogeton is found on winter ranges, a second rest period can be built into the system if needed to provide for some seedling establishment on badly infested areas. In other words, rest completely the first year to regain vigor of native grasses and perennial browse plants. Rest during the second growing season will give seedlings of perennial grasses an additional opportunity to establish themselves.

Seeded Rangelands

1. Identification of halogeton areas and areas of historic losses of animals.
2. Alter the season of use so that late summer or fall grazing replaces spring use and adjust to lighter utilization for two years. Studies at the Benmore Experimental area in Utah have shown that this treatment considerably reduced halogeton. Halogeton will persist on spring grazed areas. Variations in the grazing season provides the necessary treatment to restore vigor to perennial plants, such as crested wheatgrass. (13)

Phenology

Although halogeton is an annual, some knowledge of the phenology of this plant may be of value in some circumstances. The general growth of halogeton follows the pattern below: (5)

- * Jan. 15 to Mar. 20 - Germination begins just prior to winter snowmelt
- Apr. 1 to Cotyledon stage - no true leaves
- Apr. 20 - Rosette stage - first leaves and stem elongation
- June 15 - Cruciform - first horizontal branching
- June 30 - Erect branching stage - beginning of flowering when temperatures reach 50°F.

July 15 - Development of flower cluster
Aug. 1 - Seed development begins
Aug. 20 - Seed set -- brown seed
Aug. 30 black seed
Seed shatter -- late fall thru winter

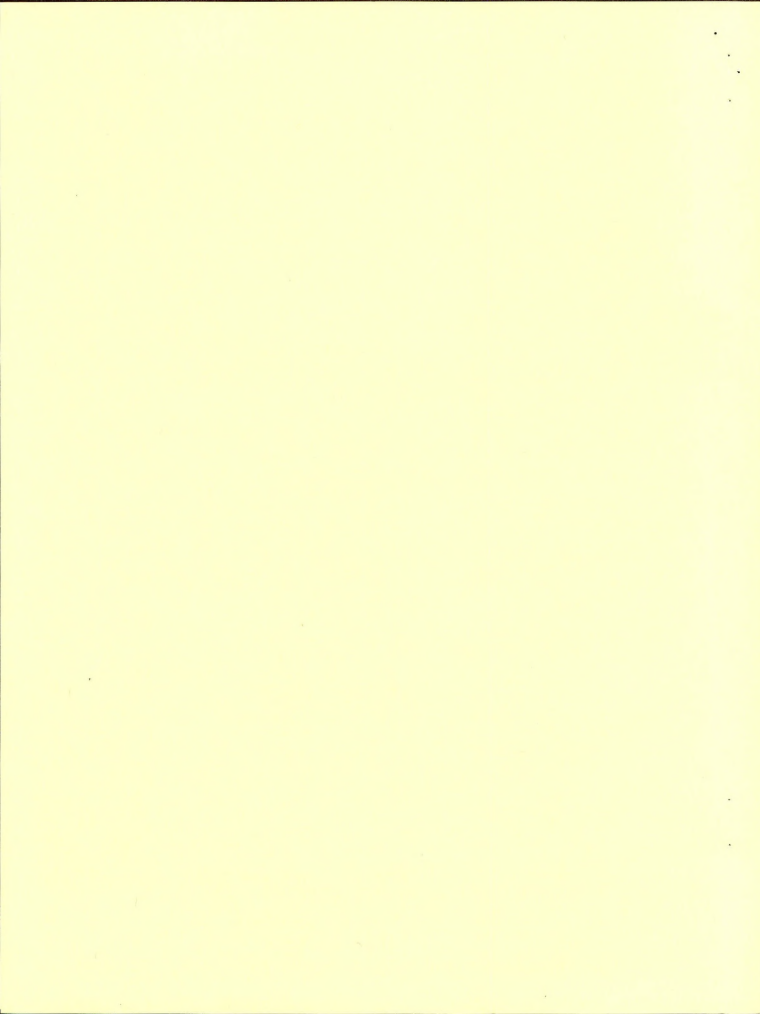
Germination begins mostly with snowmelt and continues through the moist spring months and may begin again with heavy summer rains. If nite temperatures are cold, the plants grow vegetatively. When temperatures reach 50°F, plants begin the reproduction stage. Black seeds are not produced until night darkness reaches 10 hours.

Managing the Livestock on Halogeton Infested Rangeland

In addition to managing the forage resources, it is important that the technician and livestockmen understand the importance that livestock management has on halogeton infested rangelands. This aspect should be discussed thoroughly between technicians and the livestock operator when the grazing system is jointly developed.

Basic Livestock Considerations

1. Water - a key to preventing halogeton poisoning
 - (a) Increased water consumption accompanies halogeton feeding. (24)(25)
 - (b) Sheep will graze immediately following watering, particularly following an extended period without water. (24)
 - (c) Adequate water is important in maintaining an ample and constant intake of feed. Research has shown that when sheep are not watered for extended periods, feed consumption declines rapidly. When water is supplied, the sheep will eat readily. Field observations indicate that most sheep deaths occur during these periods. (24)
2. When the rumen is relatively empty, toxic oxalate is more rapidly absorbed. Sheep with an empty stomach are poisoned on less oxalate than those that have a rumen full of feed. (25)
3. Condition animals to halogeton before placing them on heavily infested areas by allowing the animals to be exposed to small amounts of halogeton before grazing heavy stands. (24)(27)
4. Avoid using halogeton areas during animal stress periods (after driving or trucking, etc.) It may be necessary to feed pellets fortified with dicalcium phosphate during these periods. (27)(25)



Observations:

The Resource

1. Pepperweed (*Lepidium perfoliatum*) and halogeton often grow in the same areas, pepperweed in the spring, halogeton in the summer. (14)

This will give livestockmen a preview of what is ahead during the early spring as far as halogeton growth is concerned.

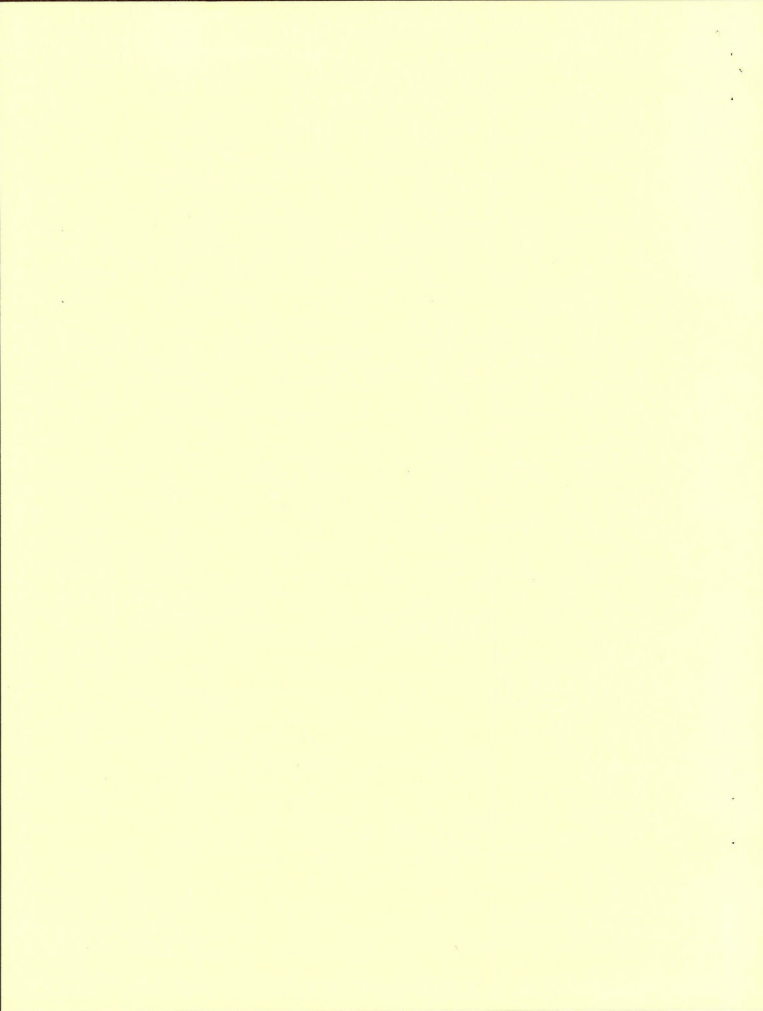
2. Halogeton will germinate at different seasons, under a variety of climatic conditions, which will result in a stand of various sizes, ages, and different growth periods all in the same season. (13)
3. Halogeton, contrary to some reports, is palatable and will be taken readily by livestock on winter ranges. (Keep this in mind.)
4. When dry summers occur that keep halogeton growth at a minimum and fall rains stimulate late growth, halogeton seeds do not germinate till late fall, leaving plants small and more succulent. It is believed that these younger, immature plants are more poisonous than mature plants. (29)

Livestock

1. Sheep operators have observed that halogeton intake has increased with snowfall, rain or a sudden thaw and will result in some losses of animals.
2. Losses are generally greater when sheep are grazed on halogeton areas where sheep have access to greasewood.
3. Favored use areas by the grazing animal where historical losses have occurred will continue to occur regardless of other safeguards. Careful identification of these areas could be significant in controlling some livestock losses.
4. Salt hunger in some cases may be a factor encouraging animals to eat halogeton. A salt supplement will not relieve the situation; however, grazing of salt-bearing plants such as shadscale does seem to help. (32)
5. Animals that have eaten a full feed of native forage can consume more halogeton before it will poison them.
6. Avoid old bedgrounds.

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